

Slip Casting As A Rapid Tooling Process Pdf

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In some sort of driven by information and connectivity, the energy of words has be much more evident than ever. They have the capacity to inspire, provoke, and ignite change. Such could be the essence of the book **slip casting as a rapid tooling process pdf**, a literary masterpiece that delves deep into the significance of words and their impact on our lives. Compiled by a renowned author, this captivating work takes readers on a transformative journey, unraveling the secrets and potential behind every word. In this review, we shall explore the book is key themes, examine its writing style, and analyze its overall effect on readers.

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Tribology of Additively Manufactured

Materials Pradeep Menezes 2022-08-12

Tribology of Additively Manufactured Materials: Fundamentals, Modeling, and Applications starts with a look at the history, methods and mechanics of additive manufacturing (AM), focusing on power bed fusion-based and direct energy deposition-based additive manufacturing. Following sections of the book provide a foundational background in the fundamentals of tribology, covering the basics of surface engineering, friction and wear, corrosion and tribocorrosion, and the tribological considerations of a variety of AM materials, such as friction and wear in non-metallic and metallic AM materials, degradation in non-metallic AM components, and corrosion and tribocorrosion in AM components. The book then concludes with a section covering modeling and simulation scenarios and challenges related to the tribology of AM materials, providing readers with the processing conditions needed to extend and strengthen the lifetime and durability of AM materials and components. Provides theoretical, experimental and computational data for a better understanding of the complex tribological behaviors in additively manufactured components Discusses applications of

additively manufactured components, considering their tribological properties Studies how unique surface roughness and texture develop in additively manufactured components and how these unique characteristics affect their tribological function Outlines variables, additive manufacturing methods and performance of additively manufactured components Equips readers with a better understanding of degradation effects due to tribology and corrosion

Industrial Ceramics 2000

High Value Manufacturing: Advanced Research in Virtual and Rapid

Prototyping Maria K. Todd 2013-09-16

High Value Manufacturing is the result of the 6th International Conference on Advanced Research in Virtual and Rapid Prototyping, held in Leiria, Portugal, October 2013. It contains current contributions to the field of virtual and rapid prototyping (V&RP) and is also focused on promoting better links between industry and academia. This volume
23rd Annual Conference on Composites, Advanced Ceramics, Materials, and Structures A[-B] 1999
[Paper](#) 1997

The Essential Guide to Mold Making & Slip Casting Andrew Martin 2006 For potters, mold making is invaluable because

it allows them to slip-cast identical multiples of their work and this newly revised, now in color edition of Andrew Martin's classic is the definitive guide to the craft. No other volume has shown the processes in such how-to detail. It's overflowing with hundreds of photos, key techniques, projects, master artist profiles, and troubleshooting tips. A thorough introduction addresses materials and tools, and presents Martin's simple, unique template method for making clay prototypes. Create easy one-piece molds to make tiles, bowls, and platters, or multi-piece molds for more complex forms. An extensive overview covers slip formulation, while offering highly desired slip recipes for low-, mid-, and high-fire clay bodies. This will be the standard reference in every ceramist's library.

Rapid Prototyping Patri K. Venuvinod 2013-04-17 Since the dawn of civilization, mankind has been engaged in the conception and manufacture of discrete products to serve the functional needs of local customers and the tools (technology) needed by other craftsmen. In fact, much of the progress in civilization can be attributed to progress in discrete product manufacture. The functionality of a discrete object depends on two entities: form, and material composition. For instance, the aesthetic appearance of a sculpture depends upon its form whereas its durability depends upon the material composition. An ideal manufacturing process is one that is able to automatically generate any form (freeform) in any material. However, unfortunately, most traditional manufacturing processes are severely constrained on all these counts. There are three basic ways of creating form: conservative, subtractive, and additive. In the first approach, we take a material and apply the needed forces to deform it to the required shape, without either adding or removing material, i. e. , we conserve material. Many industrial processes such as forging, casting, sheet metal forming and extrusion emulate this approach. A problem with many of these

approaches is that they focus on form generation without explicitly providing any means for controlling material composition. In fact, even form is not created directly. They merely duplicate the external form embedded in external tooling such as dies and molds and the internal form embedded in cores, etc. Till recently, we have had to resort to the 'subtractive' approach to create the form of the tooling.

Novel Colloidal Forming of Ceramics Yong Huang 2011-04-05 "Novel Colloidal Forming of Ceramics" discusses several new near-net-shape techniques for fabricating highly reliable, high-performance ceramic parts. These techniques combine injection molding and the colloidal forming process. The book not only introduces the basic theoretical development and applications of the colloidal injection molding of ceramics, but also covers tape casting technology, the reliability of the product, and the colloidal injection molding of Si₃N₄ and SiC, as well as the low-toxicity system. The book is intended for researchers and graduates in materials science and engineering. Mr. Yong Huang and Dr. Jinlong Yang are both professors at the Department of Materials Science and Engineering, Tsinghua University, China.

Solid Freeform Fabrication: A New Direction in Manufacturing J.J. Beaman 1997 Solid Freeform Fabrication: A New Direction in Manufacturing is a research monograph covering the emerging manufacturing technology of solid freeform fabrication. This new enabling technology is a set of manufacturing processes capable of dramatically reducing time to market by producing complex freeform solid objects directly from a computer model without part-specific tooling or knowledge. Solid Freeform Fabrication: A New Direction in Manufacturing presents a detailed description of present solid freeform fabrication techniques whilst providing a historical perspective of its development. Researchers in mechanical, chemical, electrical, and manufacturing engineering and materials and computer science will all

find material of interest in this book. Particular subareas of concern include manufacturing methods, polymer chemistry, computational geometry, control, heat transfer, metallurgy, ceramics, optics, and fluid mechanics. Whilst this book covers the spectrum of solid freeform fabrication processes, particular emphasis is given to the area of thermal laser processing in which the authors have contributed pioneering research.

Preprints of the Annual Automotive Technology Development Contractors' Coordination Meeting 1995

Computer Aided Manufacturing C.

Elanchezhian 2007

Handbook of Residual Stress and

Deformation of Steel George E. Totten

2002 Annotation Examines the factors that contribute to overall steel deformation problems. The 27 articles address the effect of materials and processing, the measurement and prediction of residual stress and distortion, and residual stress formation in the shaping of materials, during hardening processes, and during manufacturing processes. Some of the topics are the stability and relaxation behavior of macro and micro residual stresses, stress determination in coatings, the effects of process equipment design, the application of metallo-thermo-mechanic to quenching, inducing compressive stresses through controlled shot peening, and the origin and assessment of residual stresses during welding and brazing. Annotation c. Book News, Inc., Portland, OR

(booknews.com)

Virtual Modelling and Rapid Manufacturing

Paulo Jorge da Silva Bartolo 2005-09-15 Virtual Modelling and Rapid Manufacturing presents essential research in the area of Virtual and Rapid Prototyping. It contains reviewed papers that were presented at the 2nd International Conference on Advanced Research in Virtual and Rapid Prototyping, held at the School of Technology and Management of the Polytechnic Institute of Leiria, Portugal, from September 28 to October 1, 2005. The volume covers a wide range of topical subjects, such as medical

imaging, reverse engineering, virtual reality and prototyping, biomanufacturing and tissue engineering, advanced rapid prototyping technologies and micro-fabrication, biomimetics and materials, and concurrent engineering

Advanced Materials Forum Two Rodrigo Martins 2004 The II International Materials Symposium is a scientific forum which discusses advances in the science and technology of materials, and is organized by the Portuguese Materials Society. The II International Materials Symposium followed a series of bi-annual national and international conferences that began 20 years ago and has become, since 2001, an international forum where scientists, engineers and technologists working in the fields of Materials Science and Engineering discuss their recent results and exchange ideas and information.

ASME Technical Papers 1997

Proceedings of the National Conference on Advanced Manufacturing & Robotics, January 10-11, 2004 S. N.

Shome 2004 Contributed papers presented at the conference held at Central Mechanical Engineering Research Institute, Durgapur.

Industry, Trade, and Technology Review 1999

Ceramics Science and Technology,

Volume 3 Ralf Riedel 2011-12-15 Although ceramics have been known to mankind literally for millennia, research has never ceased. Apart from the classic uses as a bulk material in pottery, construction, and decoration, the latter half of the twentieth century saw an explosive growth of application fields, such as electrical and thermal insulators, wear-resistant bearings, surface coatings, lightweight armour, or aerospace materials. In addition to plain, hard solids, modern ceramics come in many new guises such as fabrics, ultrathin films, microstructures and hybrid composites. Built on the solid foundations laid down by the 20-volume series Materials Science and Technology, Ceramics Science and Technology picks out this exciting material class and illuminates it from all sides.

Materials scientists, engineers, chemists, biochemists, physicists and medical researchers alike will find this work a treasure trove for a wide range of ceramics knowledge from theory and fundamentals to practical approaches and problem solutions.

Materials Selection in Mechanical Design

Michael F. Ashby 2016-09-23

Materials Selection in Mechanical Design, Fifth Edition, describes the procedures for material selection in mechanical design in order to ensure that the most suitable materials for a given application are identified from the full range of materials and section shapes available. Extensively revised for this fifth edition, the book is recognized as one of the leading materials selection texts, providing a unique and innovative resource for students, engineers, and product/industrial designers. Includes significant revisions to chapters on advanced materials selection methods and process selection, with coverage of newer processing developments such as additive manufacturing. Contains a broad scope of new material classes covered in the text with expanded data tables that include "functional materials such as piezoelectric, magnetostrictive, magneto-caloric, and thermo-electric materials. Presents improved pedagogy, such as new worked examples throughout the text and additional end-of-chapter exercises (moved from an appendix to the relevant chapters) to aid in student learning and to keep the book fresh for instructors through multiple semesters. "Forces for Change" chapter has been re-written to outline the links between materials and sustainable design.

Ceramic Fabrication Processes

Franklin F. Y. Wang 2016-10-27

Treatise on Materials Science and Technology, Volume 9: Ceramic Fabrication Processes covers the fundamental properties and characterization of materials, ranging from simple solids to complex heterophase systems. The book discusses the powder preparation processes; milling; the characterization of ceramic powders; and the effects of powder characteristics. The

text also describes dry pressing; hot pressing; isostatic pressing; slip casting; doctor-blade process; firing; and ceramic machining and surface finishing. Surface treatments; mechanical behavior; and methods of measuring surface texture are also considered. The book further tackles crystal growth as well as controlled solidification in ceramic eutectic systems. The text also looks into controlled grain growth. Professional scientists and engineers, as well as graduate students in materials science and associated fields will find the book invaluable.

Ceramic Materials and Components for Engines

Jürgen G. Heinrich 2008-11-21

Several ceramic parts have already proven their suitability for serial application in automobile engines in very impressive ways, especially in Japan, the USA and in Germany. However, there is still a lack of economical quality assurance concepts. Recently, a new generation of ceramic components, for the use in energy, transportation and environment systems, has been developed. The efforts are more and more system oriented in this field. The only possibility to manage this complex issue in the future will be interdisciplinary cooperation. Chemists, physicists, material scientists, process engineers, mechanical engineers and engine manufacturers will have to cooperate in a more intensive way than ever before. The R&D activities are still concentrating on gas turbines and reciprocating engines, but also on brakes, bearings, fuel cells, batteries, filters, membranes, sensors and actuators as well as on shaping and cutting tools for low expense machining of ceramic components. This book summarizes the scientific papers of the 7th International Symposium "Ceramic Materials and Components for Engines". Some of the most fascinating new applications of ceramic materials in energy, transportation and environment systems are presented. The proceedings shall lead to new ideas for interdisciplinary activities in the future.

Proceedings of the International Conference on Research and Innovations in

Mechanical Engineering Sehijpal Singh Khangura 2014-05-05 This book comprises the proceedings of International Conference on Research and Innovations in Mechanical Engineering (ICRIME 2013) organized by Guru Nanak Dev Engineering College, Ludhiana with support from AICTE, TEQIP, DST and PTU, Jalandhar. This international conference served as a premier forum for communication of new advances and research results in the fields of mechanical engineering. The proceedings reflect the conference's emphasis on strong methodological approaches and focus on applications within the domain of mechanical engineering. The contents of this volume aim to highlight new theoretical and experimental findings in the fields of mechanical engineering and closely related fields, including interdisciplinary fields such as robotics and mechatronics.

Comprehensive Materials Processing

2014-04-07 Comprehensive Materials Processing, Thirteen Volume Set provides students and professionals with a one-stop resource consolidating and enhancing the literature of the materials processing and manufacturing universe. It provides authoritative analysis of all processes, technologies, and techniques for converting industrial materials from a raw state into finished parts or products. Assisting scientists and engineers in the selection, design, and use of materials, whether in the lab or in industry, it matches the adaptive complexity of emergent materials and processing technologies. Extensive traditional article-level academic discussion of core theories and applications is supplemented by applied case studies and advanced multimedia features. Coverage encompasses the general categories of solidification, powder, deposition, and deformation processing, and includes discussion on plant and tool design, analysis and characterization of processing techniques, high-temperatures studies, and the influence of process scale on component characteristics and behavior. Authored and reviewed by world-class

academic and industrial specialists in each subject field Practical tools such as integrated case studies, user-defined process schemata, and multimedia modeling and functionality Maximizes research efficiency by collating the most important and established information in one place with integrated applets linking to relevant outside sources

Energy Efficient Manufacturing John W. Sutherland 2018-07-24 Over the last several years, manufacturers have expressed increasing interest in reducing their energy consumption and have begun to search for opportunities to reduce their energy usage. In this book, the authors explore a variety of opportunities to reduce the energy footprint of manufacturing. These opportunities cover the entire spatial scale of the manufacturing enterprise: from unit process-oriented approaches to enterprise-level strategies. Each chapter examines some aspect of this spatial scale, and discusses and describes the opportunities that exist at that level. Case studies demonstrate how the opportunity may be acted on with practical guidance on how to respond to these opportunities.

Ceramic Materials C. Barry Carter 2007-10-23 Ceramic Materials: Science and Engineering is an up-to-date treatment of ceramic science, engineering, and applications in a single, integrated text. Building on a foundation of crystal structures, phase equilibria, defects and the mechanical properties of ceramic materials, students are shown how these materials are processed for a broad diversity of applications in today's society. Concepts such as how and why ions move, how ceramics interact with light and magnetic fields, and how they respond to temperature changes are discussed in the context of their applications. References to the art and history of ceramics are included throughout the text. The text concludes with discussions of ceramics in biology and medicine, ceramics as gemstones and the role of ceramics in the interplay between industry and the environment. Extensively illustrated, the text also includes questions

for the student and recommendations for additional reading. KEY FEATURES: Combines the treatment of bioceramics, furnaces, glass, optics, pores, gemstones, and point defects in a single text Provides abundant examples and illustrations relating theory to practical applications Suitable for advanced undergraduate and graduate teaching and as a reference for researchers in materials science Written by established and successful teachers and authors with experience in both research and industry

Chemical Abstracts 2002

Steel Castings Handbook, 6th Edition

Malcolm Blair 1995-01-01

Frontiers in Materials Science B. Raj 2005

This volume presents contributions by a galaxy of eminent scientists and technologists from the world over in broad spectrum of areas in materials science, providing a global perspective on complex issues of current concern and the direction of research in these areas.

Manufacturing Processes for Design

Professionals Rob Thompson 2007-11-30 An

encyclopaedic guide to production techniques and materials for product and industrial designers, engineers, and architects. Today's product designers are presented with a myriad of choices when creating their work and preparing it for manufacture. They have to be knowledgeable about a vast repertoire of processes, ranging from what used to be known as traditional "crafts" to the latest technology, to enable their designs to be manufactured effectively and efficiently. Information on the internet about such processes is often unreliable, and search engines do not usefully organize material for designers. This fundamental new resource explores innovative production techniques and materials that are having an impact on the design industry worldwide. Organized into four easily referenced parts—Forming, Cutting, Joining, and Finishing—over seventy manufacturing processes are explained in depth with full technical descriptions; analyses of the typical applications, design opportunities,

and considerations each process offers; and information on cost, speed, and environmental impact. The accompanying step-by-step case studies look at a product or component being manufactured at a leading international supplier. A directory of more than fifty materials includes a detailed technical profile, images of typical applications and finishes, and an overview of each material's design characteristics. With some 1,200 color photographs and technical illustrations, specially commissioned for this book, this is the definitive reference for product designers, 3D designers, engineers, and architects who need a convenient, highly accessible, and practical reference.

Incremental Forming as a Rapid Tooling

Process Daniel Afonso 2019-05-02 This book discusses the general concept and applications of rapid tooling technologies and introduces the use of incremental forming for the development of rapid sheet tools. Methods and techniques for tool design and development are discussed, considering their manufacture using incremental forming and complementary processes. The mechanical and thermal performance of sheet metal tools is analyzed. Finally, possible applications are introduced, with the description of some case study examples.

Ceramic Fabrication Technology Roy W.

Rice 2002-11-08 Bridging the gap between textbook science and real-world engineering and operational applications, this reference presents comprehensive and easy-to-follow summaries and evaluations of fabrication techniques for ceramic and ceramic composite specimens and components. The author addresses both conventional and alternative powder-based fabrication, c

Rapid Prototyping, Tooling and

Manufacturing R. J. M. Hague 2000 The aim of new techniques of rapid prototyping, tooling and manufacturing is to take a new product from the Computer Aided Design (CAD) stage into instant production of the prototype, or even the end use part. In this report the different methods available, the

material choice, accuracy and model build size are described. An additional indexed section containing several hundred abstracts from the Rapra Polymer Library database gives useful references for further reading.

Rapid Tooling Peter Hilton 2000-06-15 A discussion of the rapid tooling (RT) technologies under development and in use for the timely production of moulds and manufacturing tools. It describes applications within various leading companies and guides product and manufacturing process development groups on ways to reduce investments of money and time.

Advances in Ceramics Costas Sikalidis 2011-08-09 The current book contains twenty-two chapters and is divided into three sections. Section I consists of nine chapters which discuss synthesis through innovative as well as modified conventional techniques of certain advanced ceramics (e.g. target materials, high strength porous ceramics, optical and thermo-luminescent ceramics, ceramic powders and fibers) and their characterization using a combination of well known and advanced techniques. Section II is also composed of nine chapters, which are dealing with the aqueous processing of nitride ceramics, the shape and size optimization of ceramic components through design methodologies and manufacturing technologies, the sinterability and properties of ZnNb oxide ceramics, the grinding optimization, the redox behaviour of ceria based and related materials, the alloy reinforcement by ceramic particles addition, the sintering study through dihedral surface angle using AFM and the surface modification and properties induced by a laser beam in pressings of ceramic powders. Section III includes four chapters which are dealing with the deposition of ceramic powders for oxide fuel cells preparation, the perovskite type ceramics for solid fuel cells, the ceramics for laser applications and fabrication and the characterization and modeling of protonic ceramics.

Ceramics Masterclass Louisa Taylor

Slip Casting As A Rapid Tooling Process
Pdf upload Suny a Paterson

2020-08-11 **Ceramics Masterclass** examines 100 great pieces of ceramics from history and explores how they were made what they do well and what we learn from them. The subject of ceramics is steeped in history and tradition. For thousands of years humans have exploited the versatile qualities of clay as a material to produce items ranging from humble utilitarian vessels integral to family living, right through to exquisite works of art. Louisa Taylor explores this diverse discipline by showcasing 100 of the most innovative and inspiring artists past and present, analysing the techniques and methods used to create the works, and the concepts which underpin their creative process. The book shows how to recreate intricate still-life dioramas like fifteenth-century artist Bernard Palissy, explore narrative like Grayson Perry and convey sensitivity to material like Phoebe Cummings. Arranged thematically, **Ceramics Masterclass** will include chapters on vessels, form and surface, function, figurative works, one-offs and installations. Explores the artistic process, methodology and techniques of 100 great artists In-depth ceramic techniques section covering skills integral to working with clay Includes historical and contemporary examples Represents a global perspective of the field, including dynamic and ground-breaking approaches to clay Perfect for students, amateur ceramicists and professionals, this book will represent a global perspective of historical and contemporary approaches to clay and be a catalyst for discovery and intrigue.

Computer Aided Manufacturing 2005
Materials and Design Xiao Ming Sang 2011-07-04 The papers in this volume were subjected to peer and expert reviews, and cover the subjects of composites, micro-/nano-materials, iron and steel, ceramics, metallic alloy materials, biomaterials, high-performance elastomers and polymers, materials physics, materials chemistry, optical/electronic/magnetic materials and other related topics. The work offers valuable up-to-date coverage of the topics.

23rd Annual Conference on

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September 23, 2023 by Suny a Paterson

Composites, Advanced Ceramics, Materials, and Structures - B

Ersan Ustundag 2009-09-28 This volume is part of the Ceramic Engineering and Science Proceeding (CESP) series. This series contains a collection of papers dealing with issues in both traditional ceramics (i.e., glass, whitewares, refractories, and porcelain enamel) and advanced ceramics. Topics covered in the area of advanced ceramic include bioceramics, nanomaterials, composites, solid oxide fuel cells, mechanical properties and structural design, advanced ceramic coatings, ceramic armor, porous ceramics, and more.

Binder and Polymer Assisted Powder Processing Randall M. German 2020-04-01 Binder and Polymer Assisted Powder Processing is an engineering guide to powder-binder-based manufacturing methods. It covers the basic principles, current and emerging practices, implementation, and cost.

Essential Readings in Light Metals, Volume 3, Cast Shop for Aluminum Production John Grandfield 2016-12-23 ONE OF A FOUR-BOOK COLLECTION SPOTLIGHTING CLASSIC ARTICLES Original research findings and reviews spanning all aspects of the science and technology of casting Since

1971, The Minerals, Metals & Materials Society has published the Light Metals proceedings. Highlighting some of the most important findings and insights reported over the past four decades, this volume features the best original research papers and reviews on cast shop science and technology for aluminum production published in Light Metals from 1971 to 2011. Papers have been divided into ten subject sections for ease of access. Each section has a brief introduction and a list of recommended articles for researchers interested in exploring each subject in greater depth. Only 12 percent of the cast shop science and technology papers ever published in Light Metals were chosen for this volume. Selection was based on a rigorous review process. Among the papers, readers will find landmark original research findings and expert reviews summarizing current thinking on key topics at the time of publication. From basic research to industry standards to advanced applications, the articles published in this volume collectively represent a complete overview of cast shop science and technology, supporting the work of students, researchers, and engineers around the world.