

1. Record Nr.	UNINA9910999669103321
Autore	Bergs Thomas
Titolo	Manufacturing Processes 3 : Electrical Discharge Machining, Electrochemical Manufacturing and Beam Processes / / by Thomas Bergs, Fritz Klocke
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2025
ISBN	3-662-70580-X
Edizione	[1st ed. 2025.]
Descrizione fisica	1 online resource (422 pages)
Altri autori (Persone)	KlockeFritz
Disciplina	670
Soggetti	Manufactures Materials - Analysis Industrial engineering Production engineering Machines, Tools, Processes Characterization and Analytical Technique Industrial and Production Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Electrical discharge machining (EDM) -- Chemical material removal -- Electrochemical machining (ECM) -- Electroplating -- Material machining with laser beams -- Material machining with electron beams (EBM) -- Material machining with high-pressure water jets -- Technology comparisons and process combinations.
Sommario/riassunto	This textbook is part of the five-volume work on manufacturing processes. This volume focuses on the presentation of process fundamentals and applications of electrical discharge machining and electrochemical manufacturing processes (electrochemical machining and electroplating) as well as laser, electron and water jet processes. Fundamental insights into the physical principles are provided and modelling and optimization methods are presented. Practical examples are used to show how technological knowledge can be used in product development and process (chain) design. In this first English edition, latest results from research have been added to the existing content of

former German editions. New additions include principles for building models, optimization strategies and the application of machine learning. In addition to use in (self) study and technical training, the book is also suitable as a reference work in product development and production planning. Technical personnel responsible for manufacturing will find a wide range of approaches for setting up processes, monitoring, control and optimization. Content Introduction - Electrical discharge machining (EDM) - Chemical material removal - Electrochemical machining (ECM) - Electroplating - Material machining with laser beams - Material machining with electron beams (EBM) - Material machining with high-pressure water jets - Technology comparisons and process combinations. Target Groups Students of manufacturing technology and other engineering areas as well as those in technical training. This volume is also aimed at practitioners in product development and production planning for designing individual processes and process chains. The Authors Prof. Dr.-Ing. Thomas Bergs heads the Manufacturing Technology Institute (MTI) at RWTH Aachen University and is Director at the Fraunhofer Institute for Production Technology (IPT). Here he heads the Process Technology division. He was also a managing partner of Aixtooling GmbH in the field of toolmaking and precision molding. Prof. Dr.-Ing. Fritz Klocke was Head of the Chair of Manufacturing Technology at the Laboratory for Machine Tools and Production Engineering (WZL) of RWTH Aachen University and the Fraunhofer Institute for Production Technology in Aachen. He was also President of the International Academy for Production Engineering (CIRP) and received honorary doctorates from the University of Thessaloniki, Leibniz University Hannover and Keio University in Tokyo.
