

1. Record Nr.	UNINA9910523752203321
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Titolo	Machine Tools Production Systems 3 : Mechatronic Systems, Control and Automation / / by Christian Brecher, Manfred Weck
Pubbl/distr/stampa	Wiesbaden : , : Springer Fachmedien Wiesbaden : , : Imprint : Springer, , 2022
ISBN	3-658-34622-1
Edizione	[1st ed. 2022.]
Descrizione fisica	1 online resource (712 pages)
Collana	Lecture Notes in Production Engineering, , 2194-0533
Disciplina	621.815
Soggetti	Manufactures Mechatronics Automatic control Robotics Automation Machines, Tools, Processes Control, Robotics, Automation
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Introduction -- Feed axes in machine tools -- Dynamic behavior of feed axes -- Feed drives for path generation -- Design of feed drives -- Process monitoring -- Automation of machines and plants -- Mechanical control systems -- Basics of information processing -- Electrical control systems -- Numerical controllers -- Command variable generation and interpolation -- Robots and robot controllers -- Production control systems -- Engineering.
Sommario/riassunto	The first part of this third volume focuses on the design of mechatronic components, in particular the feed drives of machine tools used to generate highly dynamic drive movements. Engineering guides for the selection and design of important machine components, the control technology of feed drives, and the measuring systems required for position capture are presented. Another focus is on process and diagnostic equipment for manufacturing machines and systems. The second part describes control concepts including programming methods for various applications of modern production systems.

Programmable logic controllers (PLC), numerical controllers (NC) and robot controllers (RC) are part of these presentations. In the context of automated manufacturing systems, the various levels of the automation pyramid and the importance of control systems are also outlined.

Finally, the volume deals with the engineering of machines and plants. The German Machine Tools and Production Systems Compendium has been completely revised. The previous five-volume series has been condensed into three volumes in the new ninth edition with colored technical illustrations throughout. This first English edition is a translation of the German ninth edition. Prof. Christian Brecher was elected as university professor for the Chair of Machine Tools at the Laboratory for Machine Tools and Production Engineering (WZL) of the RWTH Aachen University in 2004. He is also a member of the board of directors of the Laboratory for Machine Tools and Production Engineering (WZL) and of the Fraunhofer Institute for Production Technology (IPT), Aachen. He focuses on machine, transmission and control technology. Since 2012, as a co-founding member together with Prof. Hopmann, Prof. Brecher is head of the Aachen Center for Integrative Lightweight Production (AZL) of the RWTH Aachen University. Since 2018, Prof. Brecher has been head of the Fraunhofer Institute for Production Technology (IPT). Since 2019, he has been the spokesperson for the "Internet of Production" Cluster of Excellence at the RWTH Aachen University. Prof. em. Dr.-Ing. Dr.-Ing. E. h. Dr.-Ing. E. h. Manfred Weck was head of the Chair of Machine Tools at the Laboratory for Machine Tools and Production Engineering (WZL) of the RWTH Aachen University from 1973 to 2004. Since its foundation in 1980 until 2004, he was also Director and Head of the Department for Production Machines of the Fraunhofer Institute for Production Technology (IPT), Aachen. He founded the AiF Research Community "Ultrapräzisionstechnik e.V." (Ultraprecision technology) in 1988. Over the years, Prof. Weck received various honors and awards, amongst them the SME Frederick W. Taylor Research Medal in 2007 and the Acceptance into the Hall of Fame of the Manager Magazine in 2015. Furthermore, Prof. Weck received the Aachen Engineering Prize in 2017, honoring him for his life's work.
