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Nota di contenuto	Introduction -- Requirements and designs -- Structural components and assemblies -- Installation and foundation of machine tools -- Hydraulics -- Guide systems, bearing arrangements and feed systems -- Transmissions -- Industrial design and guidelines on machine design -- Methods and instruments used for the measurement of machine properties -- Geometric and kinematic behavior of machine tools -- Static behavior of machine tools -- Thermoelastic behavior of machine tools -- The dynamic behavior of machine tools -- Machine acceptance with test workpieces -- Acoustic behavior of machine tools -- Index.
Sommario/riassunto	The first part of this volume provides the user with assistance in the selection and design of important machine and frame components. It also provides help with machine design, calculation and optimization of these components in terms of their static, dynamic and thermoelastic behavior. This includes machine installation, hydraulic systems, transmissions, as well as industrial design and guidelines for machine design. The second part of this volume deals with the metrological investigation and assessment of the entire machine tool or its components with respect to the properties discussed in the first part of this volume. Following an overview of the basic principles of measurement and measuring devices, the procedure for measuring them is described. Acceptance of the machine using test workpieces

and the interaction between the machine and the machining process are discussed in detail. The German Machine Tools and Manufacturing Systems Compendium has been completely revised. The previous five-volume series has been condensed into three volumes in the new ninth edition with color technical illustrations throughout. This first English edition is a translation of the German ninth edition. Contents

- Requirements and designs.
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- Thermoelastic behavior of machine tools.
- Dynamic behavior of machine tools.
- Machine acceptance with test workpieces.
- Acoustic behavior of machine tools.

Target Groups This Compendium is aimed at developers, designers and users who need assistance in selecting machines as well as in their structural and control-related design and metrological assessment, or who are looking for a comprehensive overview of existing methods and procedures. It is also suitable for university students majoring in production engineering.

About the Authors 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 is a designated holder of the Aachen Engineering Prize in 2017, honoring him for his life's work.
