1. Record Nr. UNINA9910734887803321

Autore	Schneider Hatto
Titolo	Rotor Balancing : Fundamentals for Systematic Processes / / by Hatto Schneider
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer Vieweg, , 2023
ISBN	9783662660492 3662660490
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (468 pages)
Disciplina	621.82
Soggetti	Multibody systems Vibration Mechanics, Applied Mechanical engineering Industrial engineering Production engineering Multibody Systems and Mechanical Vibrations Mechanical Engineering Industrial and Production Engineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Physical basics -- Terms and explanations -- Theory of balancing -- Theory of rotor with rigid behaviour -- Theory of rotor with compliant behaviour -- Tolerances of rotor with rigid behaviour -- Tolerances of rotor with compliant behaviour -- Procedure for balancing of rotors with rigid behaviour -- Preparation of balancing -- Description of balancing task -- Balancing machines -- Tests on balancing machines -- Balancing. Procedure for balancing rotors with compliant behaviour -- Description of the balancing task -- Balancing machines -- Tests on balancing machines -- Compensation -- Preparation and performance of balancing -- Deviations during balancing -- Protection during balancing -- Balancing in the operating condition -- Formula symbols, terms and definitions -- Documents for calculation -- Subject index -- Appendix.

Sommario/riassunto

Balancing of rotors is an indispensable process for the quality management, involving many steps from design to maintenance. With many developments of rotors – with new concepts, materials and machining methods – the challenges on balancing processes change. In search for an optimum solution for these complex tasks, no patent remedies will help, but only a sound knowledge of the theoretical background of rotor balancing, of its practical implementation and of the performance of the various balancing systems. This book is intended to support systematic familiarisation with the subject and ongoing training – in practice as well as in theory. A focus of current ISO Standards development is on errors that occur during balancing – intentionally created, or accidentally generated. They must be properly analysed and taken into account in order to determine the permissible readings for residual unbalances. The acceptance criteria were specified precisely so that the balancing objective – the targeted balancing quality – can be reliably achieved. Even today, balancing rotors with shaft-elastic behaviour often is carried out following certain established in-house rules. For this reason, the modal approach was further elaborated – partly on the basis of DIN ISO 21940 – Part 12, Supplement 1. The difficult choice of correction planes for the flexural modes is explained also by various examples. Target groups · Manufacturers and users of rotating machinery, in the following areas: layout, design, computation, machine procurement, work planning, manufacturing, assembly, rotor balancing, test floor, commissioning, maintenance. · Specialists for maintenance and technical acceptance. · Teacher, lecturers and students in the area of mechanical engineering. The author Dipl.-Ing. Hatto Schneider studied mechanical engineering at the Technical University Aachen, Germany. After work for three years at KFA Jülich (Germany) in the development of high-speed rotors, he joined Carl Schenk AG, Germany, for rotor balancing machines, where he headed the technical sales department for over 20 years. Today he consults in rotor balancing and gives lectures on current balancing problems. Publications on rotor balancing technology and participation in standardisation committees such as ISO, DIN, VDI and SAE prove his commitment and competence in rotor balancing.