1. Record Nr. UNINA9910135025203321

Autore	Zhang Weihong
Titolo	Milling simulation : metal milling mechanics, dynamics and clamping principles / / Weihong Zhang, Min Wan
Pubbl/distr/stampa	London, England ; ; Hoboken, New Jersey : , : ISTE Ltd : , : John Wiley and Sons Inc, , 2016 ©2016
ISBN	1-119-26290-9 1-119-26289-5
Descrizione fisica	1 online resource (276 p.)
Collana	Numerical Methods in Engineering Series
Disciplina	671.35
Soggetti	Milling (Metal-work) Milling (Metal-work) - Data processing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Cover; Title Page; Copyright; Contents; Preface; Introduction; 1: Cutting Forces in Milling Processes; 2: Surface Accuracy in Milling Processes; 3: Dynamics of Milling Processes; 4: Mathematical Modeling of the Workpiece-Fixture System; Bibliography; Index; Other titles from ISTE in Numerical Methods in Engineering; EULA; I.1. Cutting force modeling; I.2. Surface quality simulation; I.3. Chatter stability analysis; I.4. Clamping system design; I.5. Purpose of this book; 1.1. Formulations of cutting forces; 1.2. Milling process geometry ; 1.3. Identification of the cutting force coefficients 1.4. Ternary cutting force model including bottom edge cutting effect1. 5. Cutting force prediction in peripheral milling of a curved surface; 2.1. Predictions of surface form errors; 2.2. Control strategy of surface form error; 2.3. Surface topography in milling processes; 3.1. Governing equation of the milling process; 3.2. Method for obtaining the frequency response function; 3.3. Prediction of stability lobe; 4.1. Criteria of locating scheme correctness; 4.2. Analysis of locating scheme correctness; 4.3. Analysis of workpiece stability 4.4. Modeling of the workpiece-fixture geometric default and compliance4.5. Optimal design of the fixture clamping sequence; 1.1.1. Mechanics of orthogonal cutting; 1.1.2. Cutting force model for a

general milling cutter; 1.2.1. Calculations of uncut chip thickness; 1.2.2. Determination of entry and exit angles; 1.3.1. Calibration method for general end mills; 1.3.2. Calibration method in the frequency domain; 1.3.3. Calibration method involving four cutter runout parameters; 1.3.4. Identification of shear stress, shear angle and friction angle using milling tests
3.2.1. Derivation of calculation formulations3.2.2. Identification of model parameters; 3.3.1. Improved semi-discretization method; 3.3.2. Lowest envelope method; 3.3.3. Time-domain simulation method; 4.1.1. The DOFs constraining principle; 4.1.2. The locating scheme; 4.1.3. Judgment criteria of locating scheme correctness; 4.1.4. Analysis of locating scheme incorrectness; 4.2.1. Localization source errors; 4.2.2. Fixture modeling; 4.2.3. Locating scheme correctness; 4.3.1. Modeling of workpiece stability; 4.3.2. Solution techniques to the model of workpiece stability
4.4.1. Source error analysis