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Autore	Gelnar Daniel
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Soggetti	Manufactures Quality control Reliability Industrial safety Applied mathematics Engineering mathematics Engineering design Materials science Manufacturing, Machines, Tools, Processes Quality Control, Reliability, Safety and Risk Mathematical and Computational Engineering Engineering Design Characterization and Evaluation of Materials
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
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Nota di contenuto	Chapter 1. Introduction -- Chapter 2. Basic description of DEM -- Chapter 3. Basic description of bucket elevators -- Chapter 4. Bucket elevator filling and discharge -- Chapter 5. The new method of design and optimization -- Chapter 6. Input parameters for DEM – bulk material -- Chapter 7. Input parameters for DEM – geometry of the 3D model and validation machine -- Chapter 8. Input parameters – kinematic properties -- Chapter 9. Process validation and calibration --

Chapter 10. The results for the optimization of bucket filling and discharge -- Chapter 11. The results for optimization of filling bulk material in the bucket to minimize travel resistance and impacts -- Chapter 12. The results for process optimization of bulk material filling into the bucket to minimize abrasive and destructive impacts of the bucket edge on the transported mass -- Chapter 13. The optimization of bucket discharge to maximize the transported volume and to minimize material fall down the shaft -- Chapter 14. Conclusion.

Sommario/riassunto

This book deals with the design and optimization of the bucket elevator using the discrete element method (DEM). It describes the underlying scientific basis for the design of transport equipment using computer simulations and is focused on issues relevant to the industrial sector, mechanical engineering; and the transport, treatment, measurement, and storage of bulk materials. It presents solutions for mitigating bulk material supply chain interruptions due to process malfunctions and failures, utilizing research on monitoring and evaluating of the dynamic processes of particulate matter. The aim of the book is to help readers new to the field with the design of innovative devices. Imparting practical information aimed at saving time and money in project design, the book is ideal for engineers, designers, and researchers concerned with all aspects of bulk materials. Introduces and explains fully the Discrete Element Method using measured values as inputs for the method; Shows whether calculated simulations and real measured values models can be used for design; Illustrates how to validate, calibrate, and optimize the dynamic processes of bulk elevators; Explains how to test transport and storage equipment before it is produced using dynamic simulation of material flow on transport lines, saving time and money.
