Bhatia's Design Aid Series | Machine Foundation

Foundations for Industrial Crushing Mills

Design-Aids for Practising Engineers

by K G BHATIA

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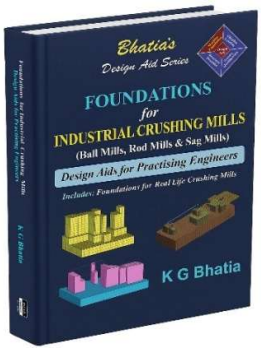
About the Book

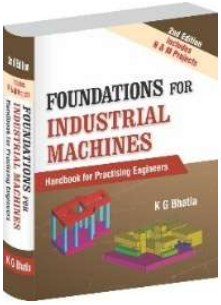
Foundations for Industrial Crushing Mills is written as Design Aids specifically for practicing engineers. This is the first book of Design Aid Series. Drawing on the author's 50+ years of industry experience, the book emphasizes the physical understanding of dynamics as applied to mill foundations. It covers the fundamentals needed to understand and evaluate the dynamic response of these foundations. The book lists the sequential steps required for designing foundations for Rod, Ball, and Sag Mills, focusing on achieving satisfactory performance for both the mill and its associated machinery. Beyond the core design philosophy, it addresses the modeling and analysis of Mill-Foundation system. This includes: i) Modeling the Mill and Foundation, and ii) Various Analysis Techniques using Finite Element Methods (FEM) and other Structural Design Methods (SDM), complementing classical approaches. It also briefly covers essential construction precautions. This text will be beneficial to Practicing Engineers, Students, Academicians/Researchers, and the industry. The text is covered in Eight Chapters:



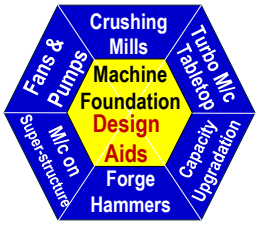
Chapter 1: Overview of Crushing Mills and their Foundations
Chapter 2: Dynamics of Mill Foundations. Theory of Vibration with specific application to Design of Mill Foundations
Chapter 3: Design parameters of Mill, Foundation & Geo-Technical parameters, required for design of mill foundation
Chapter 4: Modelling & Analysis (includes FE Modelling) of Mill Foundation. All aspects of modelling & vibration analysis
Chapter 5: Design methods: a step-by-step approach for conducting the design of a mill foundation covering 'Finite Element Method (FEM) and 'Structural Design & Analysis Methods (SDM)' using commercially available packages.
Chapter 6: Complete design of Foundation for Real-life Crushing Mill Supported over Soil
Chapter 7: Complete design of Foundation for Real-life Crushing Mill on Piles
Chapter 8: Construction aspects related to Mill Foundations.

About the Author

Dr. K. G. Bhatia earned his B.E. in Civil Engineering from **IIT BHU**, his M.Tech. in Structural Dynamics from **IIT Roorkee**, and a Ph.D. in Applied Mechanics from **IIT, Delhi**. He conducted advanced research in Earthquake Engineering under the UNESCO Program at the International Institute of Seismology & Earthquake Engineering (**IISEE**), Tokyo. After seven years in academia and research, he transitioned to **industry in 1971**. He served at Engineers India Ltd (**EIL**), designing equipment foundations for Refineries & Petrochemical plants, before joining the power giant Bharat Heavy Electricals Limited (**BHEL**) in 1975. Dr. Bhatia has been engaged in the **design, testing, and review of machine foundations** for various industrial projects including **Petrochemicals, Refineries, and Power plants** for about **four decades**. For over three decades, he has been involved in **Failure Analysis Studies** on various machines and has conducted extensive tests on both machine foundation models and prototypes. Dr. Bhatia is a **Sr. Professional Engineer** (Engineering Council of India), a **Chartered Engineer** (Institution of Engineers, India), and a Fellow of numerous professional bodies. He was awarded **"Honorary Engineer"** by the International Institute of Seismology and Earthquake Engineering (**IISEE**), Japan, for his contributions to Earthquake Engineering. He is also the recipient of the **Life-time Achievement Award** from **IIT BHU** for his outstanding work in Structural Dynamics and Machine Foundation.



*"**Foundations for Industrial Machines – Handbook for Practising Engineers** by **K. G. Bhatia**"* is a comprehensive guide that bridges theory and practice in design & analysis of machine foundations. It equips engineers with practical methodologies for achieving efficient & reliable foundation performance across diverse industrial applications. 1st edition - 2008 and 2nd edition 2011 (860 pages). ISBN: 978-81-906032-2-5. Sold in 35+ countries



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