



Surface Integrity in Machining

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"Surface Integrity in Machining" describes the fundamentals and recent advances in the study of surface integrity in machining processes.

"Surface Integrity in Machining" gathers together research from international experts in the field. Topics covered include: the definition of surface integrity and its importance in functional performance; surface topography characterization and evaluation; microstructure modification and the mechanical properties of subsurface layers; residual stresses; surface integrity characterization methods; and surface integrity aspects in machining processes.

A useful reference for researchers in tribology and materials, mechanical and materials engineers, and machining professionals, "Surface Integrity in Machining" can be also used as a textbook by advanced undergraduate and postgraduate students.

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Surface Integrity in Machining From Springer Bibliography

- Sales Rank: #674463 in Books
- Published on: 2010-01-04
- Original language: English
- Number of items: 1
- Dimensions: 9.21" h x .56" w x 6.14" l, 1.00 pounds
- Binding: Hardcover
- 215 pages

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Editorial Review

Review

From the reviews:

“Its objectives are to provide all the means for clear understanding of the current state of the art, and to lay down a solid foundation for the further developments. ... anyone involved in machining process design/development/research, quality control, and machines/structures reliability analysis/improvement will benefit greatly from reading this book. ... this book can serve as a useful reference for academics, manufacturing and metal cutting researchers, mechanical, manufacturing and materials engineers, professional in related industries with metal cutting.” (Viktor P. Astakhov, *International Journal of Machining and Machinability of Materials*, Vol. 11 (1), 2012)

From the Back Cover

In machining, a surface can be defined as a border between a machined component and its environment. The term ‘surface integrity’ is used to describe the attributes of a machined surface and its relationship to functional performance. *Surface Integrity in Machining* describes the fundamentals and recent advances in the study of surface integrity in machining processes.

In general, surface integrity can be divided into two aspects: the external topography of surfaces (surface finish); and the microstructure, mechanical properties and residual stresses of internal subsurface layers. Performance characteristics that are usually sensitive to surface integrity include; fatigue strength, fracture strength, corrosion rate, and tribological behavior (such as friction, wear and lubrication, and dimensional accuracy).

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About the Author

J. Paulo Davim received his PhD degree in Mechanical Engineering from the University of Porto in 1997 and the Aggregation from the University of Coimbra in 2005. Between 1986 and 1996, he was a lecturer at the University of Porto. Currently, he is an Aggregate Professor at the Department of Mechanical Engineering of the University of Aveiro and the Head of MACTRIB - Machining and Tribology Research Group. He has more 24 years of teaching and research experience in manufacturing, materials and mechanical engineering. He is the Editor in Chief of four international journals, Guest Editor, Editorial Board Member, Reviewer, and Scientific Advisor for many international journals and conferences. In

addition, he has also published more than 250 articles in ISI journals (150 with h-index 14) and conferences.

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