



Materials and Manufacturing Processes >

Volume 19, 2004 - [Issue 2](#)

2,885 310

Views | CrossRef citations to date | Altmetric 0

Original Articles

Use of the Taguchi Method and Grey Relational Analysis to Optimize Turning Operations with Multiple Performance Characteristics

C. L. Lin

Pages 209-220 | Published online: 07 Feb 2007

Cite this article <https://doi.org/10.1081/AMP-120029852>

Sample our
Physical Sciences
Journals



>> [Sign in here](#) to start your access
to the latest two volumes for 14 days

Full Article

Figures & data

References

Citations

Metrics

Reprints & Permissions

[Read this article](#)

Share

Abstract

This article addresses an approach based on the Taguchi method with grey relational analysis for optimizing turning operations with multiple performance characteristics. A grey relational grade obtained from the grey relational analysis is used to solve the turning operations with multiple performance characteristics. Optimal cutting parameters can then be determined by the Taguchi method using the grey relational grade as the performance index. Tool life, cutting force, and surface roughness are important characteristics in turning. Using these characteristics, the cutting parameters, including cutting speed, feed rate, and depth of cut are optimized in the study. Experimental results have been improved through this approach.

Keywords:

Turning operations

Taguchi method

Grey relational analysis

Optimization

[← Previous article](#)

[View issue table of contents](#)

[Next article >](#)

Related research

People also read

Recommended articles

Cited by
310

[The use of a grey-based Taguchi method for optimizing multi-response simulation problems >](#)

Yiyo Kuo et al.

Engineering Optimization

Published online: 20 May 2008

Information for

[Authors](#)

[R&D professionals](#)

[Editors](#)

[Librarians](#)

[Societies](#)

Opportunities

[Reprints and e-prints](#)

[Advertising solutions](#)

[Accelerated publication](#)

[Corporate access solutions](#)

Open access

[Overview](#)

[Open journals](#)

[Open Select](#)

[Dove Medical Press](#)

[F1000Research](#)

Help and information

[Help and contact](#)

[Newsroom](#)

[All journals](#)

[Books](#)

Keep up to date

Register to receive personalised research and resources by email



Sign me up



Copyright © 2026 Informa UK Limited [Privacy policy](#)

[Cookies](#) [Terms & conditions](#) [Accessibility](#)

Registered in England & Wales No. 01072954
5 Howick Place | London | SW1P 1WG



Taylor & Francis
by informa