

## Rotordynamics of automotive turbochargers: linear and nonlinear rotordynamics - bearing design - rotor balancing

Nguyen-Schafer, Hung, author

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### Abstrak

This book deals with rotordynamics of automotive turbochargers while encompassing the analysis of the dynamics of rotating machines at very high rotor speeds of 300,000 rpm and above. This interdisciplinary field involves 1. thermodynamics and turbo-matching knowledge to compute working conditions of turbochargers, 2. fluid and bearing dynamics to calculate various operating thrust loads and to design the rotating floating ring bearings (two-oil-film bearings), and 3. tribology to improve the rotor stability and to reduce the bearing friction. Mathematical background in modeling and simulation methods is necessary; however, the prerequisites have been kept to a minimum. The book addresses both practitioners working in the field of rotordynamics of automotive turbochargers and graduate students in mechanical engineering.