

BOOK REVIEW

J. Halling: Introduction to Tribology

Wykeham Publications (London) Ltd, 1976, p. 157.

The word Tribology, a rather new term, means an interdisciplinary field of sciences having mainly new scientific methods and means, although its objects, friction, wear and lubrication are old ones. Numerous examples are quoted to show the close connection of tribology not only with industry and technology but also with everyday activity in several respects.

This book is intended to raise interest in tribology. It deals mainly with physical principles, adopts simple mathematical formulas neglecting a deeper analysis. So it is enough for its understanding to know mathematics, physics and chemistry at secondary school level.

The subject matter of practical exercises at the end of each chapter lends a special fascination to the book, by advising how to construct some simple tribological instruments such as profilometer, friction or wear tester, and how to make tests.

After a short, interesting historical survey, tribology means to reduce friction and wear are outlined in the first chapter, together with concomitant economic and social problems.

In spite of its simplicity, the second chapter excels by giving an almost complete image of the structure, microgeometry and testing methods of surfaces in friction, as well as of contact characteristics of rough surfaces including elastic and plastic behaviour.

In the following chapters, simple mathematical formulas permit comprehensive quantitative analysis of friction and wear.

The third chapter describes macroscopic and microscopic laws of friction based on the contact of the surfaces, as well as various friction testers.

The mechanisms of wear, wear factors and wear testers have been described in the fourth chapter. No mention is made of erosion and cavitation. The previously described Hertz equation would permit a more detailed discussion of fatigue wear, including the influence of environmental factors.

Subsequent three chapters are on the properties and testing of lubricants, on principles and practical use of hydrostatic, hydrodynamic and elastohydrodynamic lubrication. Because of the intricacy of its mathematical basis in general, only final formulas are indicated, sufficient — together with profuse illustration matter — for understanding the subject.

The last chapter gives limitations of tribological solutions with a view on influencing parameters.

As a conclusion, this book is an excellent means for beginners to be acquainted with the laws of, and the approach to tribology.

J. CZÉGI