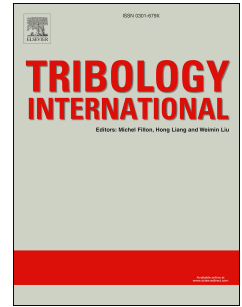


# Accepted Manuscript

A general model to evaluate mechanical losses and auxiliary energy consumption in reciprocating internal combustion engines

Bernardo Tormos, Jaime Martín, Ricardo Carreño, Leonardo Ramírez



PII: S0301-679X(18)30152-X

DOI: [10.1016/j.triboint.2018.03.007](https://doi.org/10.1016/j.triboint.2018.03.007)

Reference: JTRI 5151

To appear in: *Tribology International*

Received Date: 21 November 2017

Revised Date: 5 January 2018

Accepted Date: 9 March 2018

Please cite this article as: Tormos B, Martín J, Carreño R, Ramírez L, A general model to evaluate mechanical losses and auxiliary energy consumption in reciprocating internal combustion engines, *Tribology International* (2018), doi: 10.1016/j.triboint.2018.03.007.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

# A general model to evaluate mechanical losses and auxiliary energy consumption in reciprocating internal combustion engines

Bernardo Tormos, Jaime Martín, Ricardo Carreño\*, Leonardo Ramírez

*CMT-Motores Térmicos, Universitat Politècnica de València, Camino de Vera s/n, 46022, Valencia, Spain*

---

## Abstract

The increasingly stringent emissions regulations and the climatic change as consequence of green house gases emissions have moved the research interest towards the optimization of the internal combustion engine. Hence, the reduction of the energy losses of the engine sub-systems like friction and parasitic energy consumption are of especial interest. In this work, a model to determine the friction losses and the engine accessories energy consumption is developed based on parameters obtained in standard test benches. A description of the models to estimate friction in the piston assembly, bearings and valve train, and energy consumption of the coolant, oil and fuel pump is provided. Finally, a brief application to demonstrate the model potential in diagnosis and predictive applications is discussed.

*Keywords:* Mechanical Losses, Engine Friction, Consumption optimization

---

---

\*Corresponding author. Tel: +34963877650; fax: +34963877659  
Email address: ricarar@mot.upv.es (Ricardo Carreño)  
URL: www.cmt.upv.es (Ricardo Carreño)

Download English Version:

<https://daneshyari.com/en/article/7001707>

Download Persian Version:

<https://daneshyari.com/article/7001707>

[Daneshyari.com](https://daneshyari.com)