

Tribology Transactions - Author Guide

Revised May 20, 2007

OVERVIEW

Introduction

Tribology Transactions is a scholarly journal published by Taylor & Francis for the Society of Tribologists and Lubrication Engineers (STLE). The journal contains peer-reviewed research papers that advance the science of tribology, lubricant technology and lubrication engineering. *Tribology Transactions* is published in paper form and on the web. Examples of papers published in issue 47(1) may be viewed with free access at <http://www.informaworld.com/smpp/title~content=g713778022~db=all> or via the publications links on the STLE website <http://www.stle.org>. Discussions of papers and Author's Responses are also welcomed.

Manuscript Submission

All manuscripts must be submitted electronically via the Author Center in the *Tribology Transactions* site at <http://mc.manuscriptcentral.com/tribtrans>. This link accesses Manuscript Central, a website which allows easy submission of original and revised manuscripts and is used for all communication between authors, editors and reviewers. The Manuscript Central website is hosted by ScholarOne, Inc.

Creating an Account on Manuscript Central

If you do not already have an account on the *Tribology Transactions* site of Manuscript Central, you may create an account by clicking on the "Create Account" link at the top right of the *Tribology Transactions* log in page at <http://mc.manuscriptcentral.com/tribtrans>. Please avoid creating a duplicate account, which will cause communications problems in the system. If you are not sure whether you have an account, you may check by entering your email address in the Password Help box on the log in page. Alternatively, you may request an account by contacting the editor at ajackson@stle.org. Note that if you have a Manuscript Central account for another journal, it will NOT work for *Tribology Transactions*. Each journal has its own unique, unconnected list of user accounts.

Note that when you create an account, you will be asked to select your areas of knowledge from the STLE Key Word list (see next section) to help correctly assign future manuscripts for peer-review. In return for having your manuscript peer-reviewed by other volunteers, we feel it is reasonable to expect that you will volunteer to be part of the reviewer pool for the manuscripts of others. Reviewers are matched to manuscripts through the reviewer knowledge areas and the manuscript keywords.

Originality and Subject Area

A manuscript submitted for publication must describe a significant, new contribution to the field. It must be a report of completed work and must be self-contained except where clear links to previous work are given with publicly available references. Subject areas covered by the journal can be found in the STLE Key Word list, which can be accessed via "Instructions and Forms" on the Manuscript Central log in page (log in not needed to download instructions) at <http://mc.manuscriptcentral.com/tribtrans>.

Language

Manuscripts must be written in English and must be grammatically correct, clear and unambiguous. Manuscripts failing to meet these criteria will be returned to the author for improvement before peer review. Authors should not use the first person (I or We).

No Commercialism

Trade names of products and company names may not be used in the main text of papers published in *Tribology Transactions*. For example, use PTFE or polytetrafluoroethylene instead of Teflon, which is a trade name. Exceptions are allowed when needed for an adequate description, such as Falex tester, Aldrich reagent grade stearic acid, and Timken OK load. Affiliations are acceptable in the Acknowledgements section and commercial sources of components or materials can be referenced. In both cases you should avoid any indication of advertising.

Peer-Review

An Associate Editor knowledgeable in the subject of the manuscript will be assigned to manage peer-review and make a decision on publication. Typically three peer-reviews are sought. When submitting a manuscript, authors are requested to suggest three people with knowledge of the topic who could conduct an impartial review. You will be asked for first name, last name and email address.

To increase the chances that your manuscript will pass through the review process smoothly, we suggest you download a copy of the Review Form from “Instructions and Forms” on the Manuscript Central log in page (log in not needed to download instructions) at <http://mc.manuscriptcentral.com/tribtrans>. Give your manuscript and the Review Form to a knowledgeable colleague and ask for a preliminary review, then make the suggested changes. The Review Form clearly describes the criteria for publication in *Tribology Transactions* and should be helpful as you prepare your manuscript.

Permission to Publish

The author is responsible for obtaining permission to publish the manuscript from his/her organization as well as for permission to reproduce any figure, table and text previously published by others. STLE will own the copyright to the paper when published. You will be required to confirm this permission as part of the submission process.

Communications

You will receive e-mails via Manuscript Central when action is required on your part. You may view the status of your manuscript at any time in your Author Center on Manuscript Central.

MANUSCRIPT PREPARATION

File Types

Manuscripts must be prepared using word processing software on a computer. Upon submission, manuscripts will be converted to HTML and PDF format. Preferred formats for text conversion are Microsoft Word (.doc), Rich Text Format (.rtf) and Post Script (.ps). Figures and Tables may be added to the main document or submitted as separate files. Separate files are preferred for figures. Preferred formats for figures are Tagged Image File (.tif) and Encapsulated PostScript (.eps). See Tables and Figures sections below for information on resolution. Information on preferred file types can be found via “Instructions and Forms” on the Manuscript Central log in page (log in not needed to download instructions) at <http://mc.manuscriptcentral.com/tribtrans>.

Manuscript Format and Style

To facilitate editing and review, manuscripts must be prepared with double line spacing and with all margins set to at least 1 inch (2.5 cm). Page size should be set to US Letter (8.5 x 11 inches). Use Times New Roman font set at size 12. Most symbols can also be found in this font. Do not use line justification - let the right hand margin float. Leave a line between paragraphs. Pages must be numbered, centered in the footer. Use larger font for the title at the top of the paper. Show author names and affiliations below the title. *Tribology Transactions* does not number sections - use bolded text for section and subsection titles.

Manuscript Length

Papers typeset and published in *Tribology Transactions* are typically 4 to 12 pages in length. Short articles should be submitted to STLE's journal *Tribology and Lubrication Technology* to be considered for publication. Manuscripts that will result in more than 12 published pages may be accepted at the Editor's discretion, but authors should consider reducing the length or splitting the paper into parts. The number of figures, tables, and mathematical expressions should be the minimum necessary for presentation of data.

As a guide for converting manuscript size to paper size, add together

- the column length required for your figures (see Figures section below)
- an estimate of column length for your tables (print out in 8-font and measure)
- 0.4 inches (1 cm) per figure or table for its caption
- 0.4 inches (1 cm) for each one-line equation
- 0.4 inches (1 cm) for each section or sub-section heading

- 6 inches (17.5 cm) for the title block
- the number of words divided by 60 per inch (24 per cm)

Divide the total by 19 inches (48 cm) to estimate the number of published pages. If the answer is greater than 12 pages, consider shortening or splitting into parts.

MANUSCRIPT ORGANIZATION

The order of contents of a manuscript is

- Title
- Author Information
- Abstract
- Keywords
- Main Text, usually consisting of
 - Introduction,
 - Theory and/or experiment
 - Results
 - Discussion
 - Conclusions
- Acknowledgements (normally less than 100 words)
- References
- Appendices
- Nomenclature, if needed
- Table and Figure captions
- Tables
- Figures

(Note that tables and figures may be submitted as separate files in Manuscript Central).

Title

The title must be 25 words or less. It should contain enough information for a reader to understand the nature of the work. Manuscript Central will also ask you to supply a Running Head, a version of the title that appears at the top of alternate pages of the paper in the journal. Space limits this to 100 characters - enter the title again if it is shorter than 100 characters, otherwise, enter a meaningful shorter version.

Author Information

Author and co-author name(s) should have full first name, middle initial(s) and last name (family name or surname), e.g. Christopher J. Smith. Chinese first names may be a single word (Liming) or hyphenated (Li-Ming) and Chinese family name should be placed last, e.g. Liming Chang. Add grade of STLE membership (Associate, Member, Fellow) if a member for each author. Add business affiliations or educational institutes, with city, state, postal or zip code and country.

Abstract

The abstract must be 250 words or less. The abstract summarizes what was studied and why, and should briefly highlight new results. Information not described in the manuscript should not be in the abstract. Abstracts do not contain references or equations. The abstract will be visible to all in the electronic version of *Tribology Transactions*, and also through abstract services, so it is your opportunity to “sell” your paper.

Keywords (Attributes)

Please be thorough in selecting keywords for your manuscript. This will speed up the review by helping search for appropriate reviewers and will enable your published paper to be found by keyword searches. There are about 450 keywords, grouped in 25 categories, in the STLE Keyword List, which can be accessed via “Instructions and Forms” on the Manuscript Central log in page (log in not needed to download instructions) at <http://mc.manuscriptcentral.com/tribtrans>. Click on this link to view and print out the index and to pre-select your categories and keywords. You may also add descriptors for your paper that are not in the keyword list (e.g. a chemical name, an analytical technique, a new component, etc.)

Main Text

Sections and subsections must not be numbered. Use bolded upper case text for **SECTION HEADINGS** and bolded title case for **Subsection Headings**. Do not use footnotes in the main text.

The **introduction** should set the scene for the research being reported. Previous work should be summarized, with references given. The objectives of the work should be clearly stated. The benefits of your results to the technical community or to society should also be outlined.

The **theory and/or experimental** parts of the manuscript may have as many sections and subsections as you feel are needed to partition the work in a logical manner. Referenced work used as a starting point for a technical derivation or to describe an experimental method, must be peer-reviewed and publicly available and the link to your work must be clear and correct. See the reference section below for examples of primary references suitable as starting points. Experiments must be described completely so that they could be repeated by a skilled reader with a similar apparatus. Test conditions must be clearly stated.

Equations should be placed in the manuscript text where they should appear in the published paper. Preferred equation editors are Microsoft English Equation Editor or MathType by Design Science (<http://www.mathtype.com/msee>). Equations should be numbered sequentially with the numbers enclosed in square brackets [1]. In the text, refer to equations as Eq. [1] or Equation [1].

Abbreviations or acronyms should be spelled out when first used followed by the abbreviation in parentheses e.g. scanning electron microscope (SEM), atomic force microscope (AFM). Later in the paper it may be referred to by the acronym alone. Identification of **metals and alloys** will follow the guidelines in ASTM Standard: E527-83(2003) "Standard Practice for Numbering Metals and Alloys (UNS)," www.astm.org.

The **results** and **discussion** parts of the manuscript will present all the important results and then discuss their significance and relevance. Comparisons with the results of others should be given and the new contribution of your results should be clearly presented. Precision of results, such as repeatability and confidence limits, should be stated. Speculation and suggestions for future work can be given in the discussion.

The **conclusions** should be clearly proven by the data presented and should link to the objectives stated in the introduction. Conclusions should be factual not speculative.

Acknowledgements

This section, typically less than 100 words, allows contributors of funding, materials, data, experimental assistance, etc. to be acknowledged. Commercial names may be used as descriptors but not as advertisements.

References

Primary references include technical papers from reputable, archival, peer-reviewed journals, technical books edited and published by a reputable publisher, university theses, peer-reviewed proceedings or preprints of reputable technical meetings (paper or CD-ROM), and technical standards. Book or Proceedings references should include the ISBN number. Only primary references should be used as a starting point for a derivation or to describe an experimental method. It is not acceptable to build a structure on a shaky foundation.

Secondary references are acceptable if they help the reader understand the background of the work but must not be used as a technical basis for the work. Examples of secondary sources are non-peer-reviewed journal articles, non-reviewed preprints or proceedings, non-technical books, patents and websites. A website is acceptable if it helps the reader learn about a piece of test equipment, an instrument, software, etc. It should not replace an adequate description of these but should be supplemental. Websites are ephemeral, so the date it was accessed by the author should be included in the reference.

Material that has not been published and is not available to a reader may not be referenced. Unacceptable examples are private communications and unpublished papers.

See **Appendix A** for examples of various types of references shown in the *Tribology Transactions* format. Number references sequentially in the manuscript text and show with names followed by numbers in parentheses (Jackson et al (1)).

Appendices

Detailed material that supports statements in the body of the manuscript, such as extended mathematical derivations, should be placed in an appendix. Appendices are lettered, not numbered, e.g. Appendix A.

Nomenclature

If you use 10 or more symbols in the equations in your paper, they must be defined in a Nomenclature list, which will appear at the top of page 2 in the published paper. A smaller number of symbols may be defined when they first appear in the text. The letter symbols preferred by *Tribology Transactions* are shown in **Appendix B**. In your manuscript, place the Nomenclature list on a new page following the Reference list.

Notes on **Units**:

- Use SI units. British units may be added in parentheses, e.g. 725 kPa (105 psi).
- When describing time, use s for second (not sec.).
- Multiplication of units may be shown by a centered period, i.e., m.s⁻¹.
- For large numbers, use commas, as in 1,000 and 100,000.
- For very large numbers use exponential notation, e.g. 6.023 x 10²³.
- Temperature can be reported in degrees Celsius (C or °C) or Kelvin (K or °K).
- L should be used for liter because l is often confused with the number 1.
- The unit for kinematic viscosity is mm²/s and for dynamic viscosity is Pa.s or mPa.s. You may add cS (or cSt) or cP in parentheses.
- The SI system distinguishes between mass (kg), and force (N). For example, the mass hanging on a loading arm is expressed in kilograms (kg) and the force between specimens is in Newtons (N). Pressures are expressed in Pascals (Pa).
- For rotational velocity, rpm or rad/s may be used.

Figure and Table Captions

A list of table and figure and captions should be placed on a separate page. Each caption must give all the information necessary to understand the figure or table without needing to go back to the main text. If table and figure files are submitted separately in Manuscript Central, you will be asked to add a caption for each file. Keep this page of captions open on your computer so you can copy and paste them into the entry block during web submission. You will also be asked to supply a “File tag”, which links a phrase in your text file to your image file. For example, if you want to link "Figure 1" to this particular figure then type "Figure 1" into the file tag field. In the HTML manuscript proof, clicking on "Figure 1" will show the figure. Be consistent in your tag and your text e.g.: Fig. 1 will not link to Figure 1 and vice-versa.

Tables

When uploading your manuscript in Manuscript Central, tables may be submitted either as part of the main document or as separate files. Tables will be placed appropriately in the text when the paper is typeset. Tables submitted with the main document should be placed after the captions page and each table should be placed on a separate page. Tables from Excel spreadsheets should be copied and pasted either into the main document or into a separate text document for submission. Type the caption below each table to assist the typesetter. Footnotes may be used in tables to help explain the contents. Numerical data should be decimal point-aligned. Symbols may be defined in a footnote if not already defined in the Nomenclature. Number the tables consecutively and refer to them in the text as Table 1, etc.

Figures

Figures include graphs, charts, line drawings, diagrams, photographs and micrographs, etc. and must be submitted as digital files. It is preferred that figures are uploaded as separate files in Manuscript Central,

but figures attached to the bottom of the manuscript will be accepted. Each figure must be on a separate page with its caption typed below. They will be placed appropriately throughout the text when the paper is typeset. Figures must be numbered consecutively and referred to in the text as Fig. 1 or Figure 1, etc.

Preferred formats for figures are Tagged Image File (.tif) and Encapsulated PostScript (.eps) with a minimum resolution of 300 dpi. Line art, graphs and drawings should be saved at 600 or 1200 dpi. Lower resolution will not publish well and higher resolution will result in unnecessarily large files. JPEG (.jpg) and Bitmap (.bmp) files do not usually have adequate resolution for publication. Graphs created in Excel should be copied to a graphics program and saved as a TIF (.tif) file.

Figures must be clearly legible and unambiguous when printed in black and white at the size they will appear in print. **Authors should print out** for themselves a copy of their figures with the size reduced to one column width (3.3 inches, 8.3 cm) to confirm that the font size chosen for any text on the figures (axis labels, legend, symbols, text blocks, etc.) will be clearly legible when published. Large figures can be published in two-column width (up to 6.9 in, 17.5 cm wide) and should be printed out and checked at this size. Measure the height of all your printed-out figures for the paper size calculation above.

A **graph** must be as simple as possible and be self-explanatory without the reader needing to refer back to the text. Give confidence intervals on data points where appropriate. As a minimum, the left and lower axes should be labeled, with variables and SI units where appropriate, e.g., “Sliding Velocity, V , ms^{-1} ”. Use powers of 10 for large numbers. Tick marks at intervals on the scale are preferred instead of gridlines. Scanned chart recordings will be allowed if clearly legible.

IMPORTANT: Print out colored graphs in **black and white** to check that lines are clearly differentiated either by line style or symbol type. Colored lines rarely convert well in grey scale and should have clearly differentiated symbols or be labeled with arrows and text. Images should be printed in grey-scale to confirm that they are clear and unambiguous. Color is an option, but will cost the author about \$1000 per page in color publication charges (exact prices can be provided on request). The author must agree to pay this charge at the point of submission if color is requested. If any figures are unclear, the manuscript will be returned for correction before entering peer review.

A **photograph** must clearly show the features described in the text. A scale is required on **micrographs** so that the size is clear to the reader if the micrograph is reduced for typesetting.

Appendix A - Examples of References

PRIMARY REFERENCES

[Peer-Reviewed Paper]

- (1) Shen, D. and Salant, R. F. (2006), "A Transient Mixed Lubrication Model of a Rotary Lip Seal with a Rough Shaft," *Tribol. Trans.* **49**, 4, pp. 621-634.

[Peer-Reviewed Preprint]

- (2) Popovici, G. and Venner, C. H. (2003), "Effects of Load System Dynamics on the Film Thickness in EHL Contacts During Start Up," STLE Preprint 2003-137, STLE-ASME International Joint Tribology Conference, STLE, Park Ridge, IL.

[Peer-Reviewed Proceedings]

- (3) Barwell, F. T. and Lingard, S. (1979), "The Thermal Equilibrium of Plain Journal Bearings," Paper 1 (ii), Proc. Leeds-Lyon Conference "Thermal Effects in Tribology", Lyon, France, September 1979. Mechanical Engineering Publications Ltd, London, UK, ISBN 0 85298 467 7.

[Peer-Reviewed Proceedings on CD-ROM]

- (4) 2005 Powertrain & Fluid Systems Conference and Exhibition, October 24-27, 2005, San Antonio, TX. CD-ROM, Society of Automotive Engineers FFL2005CD, ISBN 0 7680 1652 5.

[Edited Technical Book]

- (5) Dowson, D. (1998), "History of Tribology," 2nd Edition, Professional Engineering Publishing Ltd., London, UK, ISBN 1 86058 070 X

[University Thesis]

- (6) Larsson, R. (1996), "Elastohydrodynamic Lubrication under Non-Steady Conditions," Doctoral Thesis 1996:193D, Luleå University of Technology, Division of Machine Elements, S-971 87 Luleå, Sweden.

[Technical Standard]

- (7) D2714-94 (2003), "Standard Test Method for Calibration and Operation of the Falex Block-on-Ring Friction and Wear Testing Machine," ASTM International, West Conshohocken, PA.

SECONDARY REFERENCES

[Patent]

- (8) Farnig, L. O., Jackson, A., Givens, W. A. Jr., Deckman, D. E. and Buck, W. H. (2004), "Low Ash, Low Phosphorus and Low Sulfur Engine Oils for Internal Combustion Engines," U.S. Patent 6,730,638.

[Commercial Brochure]

- (9) ExxonMobil Chemical Synthetics (2004), "Synthetic Lubricant Basestocks", P.O. Box 3272, Houston, TX 77253.

[Website]

- (10) Society of Tribologists and Lubrication Engineers, <http://www.stle.org> accessed February 16, 2007.

[Non-Peer-Reviewed Proceedings on CD-ROM]

- (11) 2007 Annual Meeting, Society of Tribologists and Lubrication Engineers, <http://www.stle.org> accessed May 6, 2007.

Appendix B - List of preferred symbols for Tribology Transactions

If you use 10 or more symbols in the equations in your paper, they must be defined in a Nomenclature list, which will appear at the top of page 2 in the published paper. A smaller number of symbols may be defined when they first appear in the text.

a	semi-major axis of contact ellipse	T_b	bulk temperature
A	area of contact	T_f	flash temperature
b	semi-minor axis of contact ellipse	u	velocity in the x direction
B	bearing width	U	dimensionless speed = $\eta (u_1+u_2)/2 E'R$
C	axial gap or clearance	v	velocity in the y direction
C_p	specific heat at constant pressure	w	velocity in the z direction
d, D	diameter	W	dimensionless load = $Q/ E'R^2$
d_i	inner raceway diameter	x	coordinate parallel to direction of motion
d_m	pitch diameter, $(d_i + d_o)/2$	y	coordinate across the direction of motion
d_o	outer raceway diameter	z	coordinate normal to direction of motion
e	eccentricity	α	pressure-viscosity coefficient
E	Young's modulus of elasticity	β	temperature-viscosity coefficient
E'	eff. modulus = $2[(1- \nu_1^2)/E_1+(1- \nu_2^2)/E_2]^{-1}$	γ	shear
F	gear face width	δ	elastic deformation
$f_{x,y}$	traction force in x,y directions	δ	displacement
G	dimensionless materials parameter = $\alpha E'$	ϵ	eccentricity ratio = e/C
G	shear modulus	ϵ	strain
h	oil-film thickness	η	dynamic (absolute) viscosity
h_{min}	minimum oil-film thickness	η_0	dynamic viscosity at ambient pressure
H	dimensionless film thickness = h/R	η_p	dynamic (absolute) viscosity at pressure p
H	hardness	θ	angle
k	elliptical parameter	κ	thermal diffusivity
k	bearing stiffness	λ	specific film thickness = h/σ
k, K	thermal conductivity	μ	coefficient of friction
ℓ	line contact length	ν	Poisson's ratio
L	bearing length	ν	kinematic viscosity
m_G	gear ratio	ρ	density
N	rotational speed (rpm)	σ	composite roughness = $(\sigma_1^2 + \sigma_2^2)^{0.5}$
p, P	pressure	$\sigma_{1,2}$	RMS roughness, surfaces 1,2
q	flow rate	σ	stress
Q	load	σ_{max}	maximum Hertzian stress
r	radius of curvature	τ	shear stress
R	reduced radius of curvature = $(r_1^{-1}+r_2^{-1})^{-1}$	φ	gear pressure angle
Re	Reynolds number	Ψ	gear helix angle
t	time	ω, Ω	angular velocity
T	torque		
T	temperature		