

TriboForm[®]

virtual tribology

A new dimension to metal forming simulations

high impact | easy integration | unmatched accuracy



All about Virtual Tribology

Tribology in metal forming processes

Tribology is the science and technology for friction, lubrication and wear. Tribology plays a key role in metal forming processes through the relative motion and interaction between the applied sheet material, the lubrication and the tooling. Tribology determines the quality of metal formed products and strongly influences the stability and efficiency of the production process.

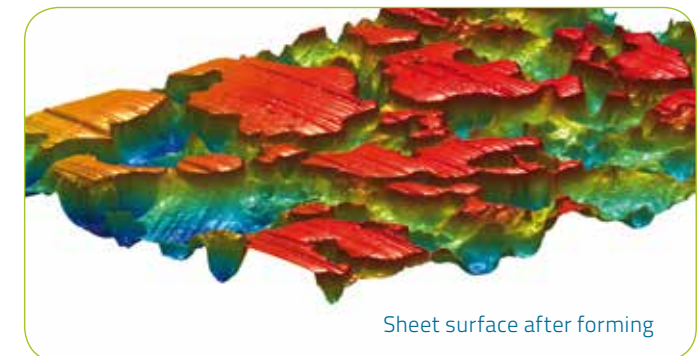
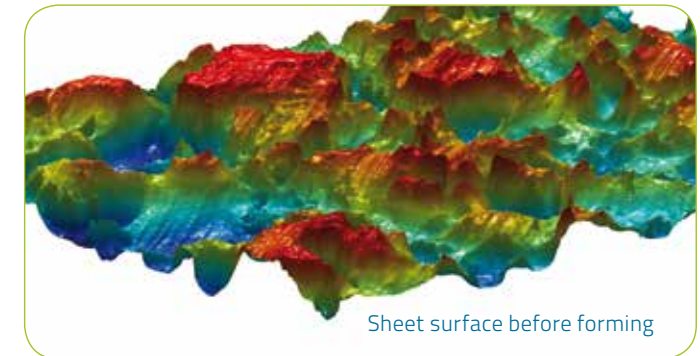
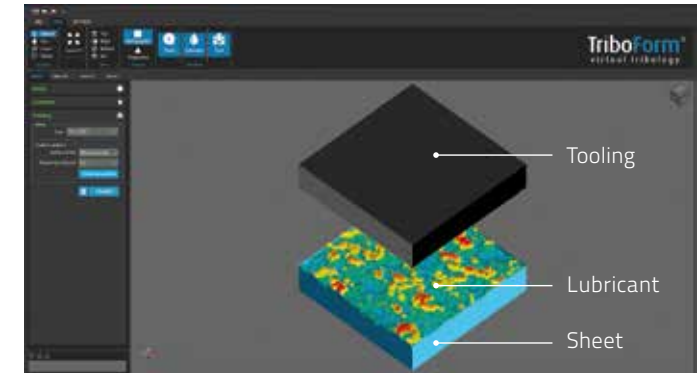
What is Virtual Tribology?

Virtual Tribology is the simulation technology for friction, lubrication and wear. TriboForm® is a software solution for the simulation of friction and lubrication in metal forming processes. With unique physically-based simulation technology, TriboForm® enables its users to accurately simulate friction and lubrication conditions in a matter of minutes and directly integrate the results in metal forming simulations.

Integration in metal forming simulations

Although friction is of key importance, it is currently not considered in detail in metal forming simulations. The current industrial standard is to use a constant (Coulomb) coefficient of friction. This limits the overall simulation accuracy. To achieve more realistic simulation results with increased reliability, it is crucial to accurately account for tribology effects in metal forming simulations.

TriboForm® brings metal forming simulations to a higher level by replacing the constant coefficient of friction in metal forming simulations with realistic and highly accurate friction and lubrication data. This enables faster and more accurate metal forming simulations with enriched simulation functionalities.



How it works

Your benefits

1



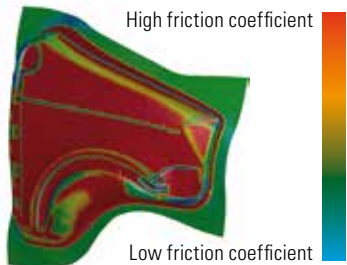
Simulate friction and lubrication conditions for the materials and lubricants used in actual metal forming production. Directly access a comprehensive industry standard tribology and friction database, and export results for use in metal forming simulations.



Unmatched Accuracy

- Accurate friction and lubrication data in metal forming simulations
- Improved simulation accuracy of critical quality factors
- Enriched simulation functionalities

2



Improve the accuracy of metal forming simulations by integrating TriboForm®. Simulate critical quality factors and plan with greater confidence, simulate the robustness of production processes more realistically, or perform a detailed tribological analysis in try-out and production.



Easy Integration

- One-step integration into FEM software packages
- Seamless application in the existing operational workflow
- Easy to use throughout the supply chain

3



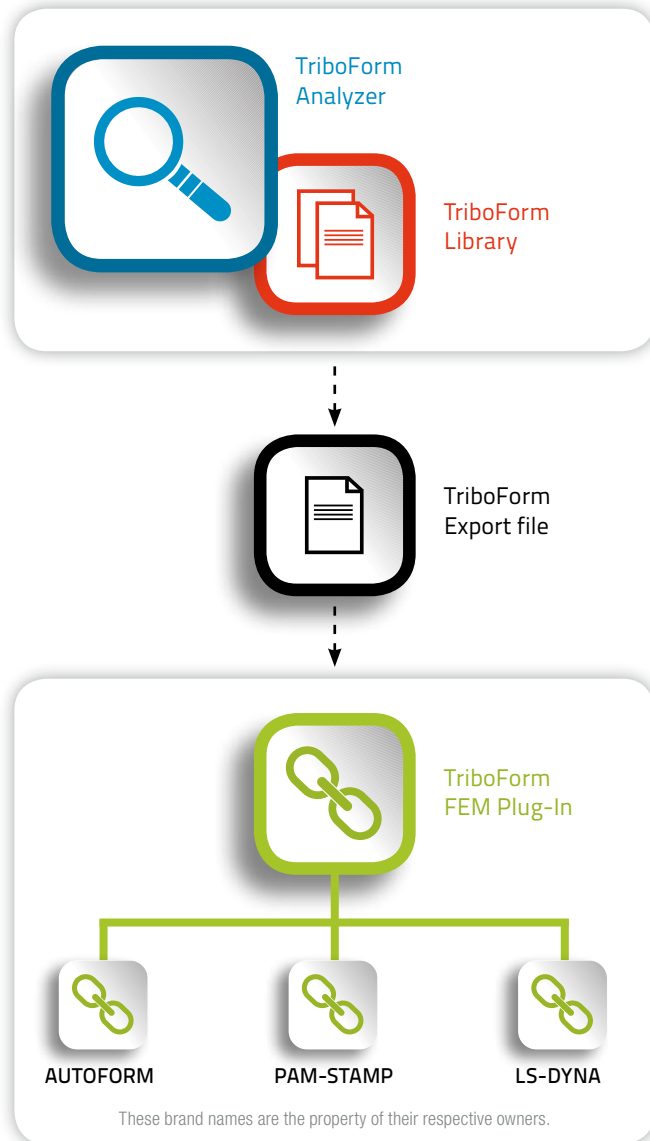
Start adding value throughout the development process, in every stage from concept to engineering and mass production, by reducing costs, cutting time-to-market, and improving product quality. Check out customer cases at www.triboform.com.



High Impact

- Minimize the Total Cost of Ownership of formed metal products
- Shorten time-to-market of new products
- Improve final product quality

TriboForm® software



Various licensing alternatives are available for TriboForm's software solutions to meet your exact needs and operational workflow. Check out www.triboform.com for an overview of licensing alternatives, covering the following TriboForm® software products:

→ The **TriboForm Analyzer** is a standalone software solution enabling users to efficiently simulate, visualize and evaluate tribology, friction and lubrication conditions. Users can access the TriboForm Library and directly export results for the TriboForm FEM Plug-In.

→ The **TriboForm Library** offers direct access to a comprehensive industry standard tribology and friction database. It includes the most recent and commonly used materials and lubricants applied in the sheet metal forming industry. Let TriboForm Engineering customize your TriboForm Library by adding user-defined materials and lubricants.

→ The **TriboForm FEM Plug-In** enables one-step integration of TriboForm results into commercial FEM simulation packages. This enables advanced tribology, friction and lubrication simulation in the most commonly used sheet metal forming simulation packages, including AutoForm, PAM-Stamp and LS-Dyna.

Visit our website www.triboform.com for technical user cases, business cases and a software trial.

KEY SOFTWARE FEATURES



Simulate friction and account for the actual sheet material, tooling material, surface characteristics and lubrication conditions.



Efficiently analyze friction and lubrication conditions for a wide range of process settings (pressure, velocity, temperature and strain).



Build on a comprehensive and continuously updated tribology and friction industry standard database.



Include a location dependent and time-varying coefficient of friction in metal forming simulations using the one-step TriboForm FEM Plug-In.



Designed to be easily integrated into existing operational workflows as add-on software without any switching costs.

About TriboForm®

TriboForm® offers high-impact software solutions for the simulation of tribology, friction and lubrication in metal forming processes. Easy to use, fast and accurate, the software empowers our customers to quickly understand, simulate and solve tribology-related problems in the metal forming industry.

By contributing to faster, more efficient and high-quality product development and manufacturing, we deliver tangible added value in the entire process from concept to engineering and mass production. We help our customers and supply chain partners to significantly reduce costs, improve product quality, and shorten time-to-market.

Check out our customer cases at www.triboform.com and find out how leading automotive OEMs and supply chain partners in the metal forming industry are benefiting from the TriboForm® software.

Experts in Virtual Tribology

TriboForm® Engineering offers software solutions for virtual tribology. The TriboForm® software is a breakthrough innovation for the simulation of tribology, friction and lubrication in metal forming processes.

Founded in 2013 as a University of Twente spin-off, TriboForm® is strongly rooted in the scientific environment and strives for ongoing high-value innovations and development of its software products.

With its market-leading expertise, TriboForm® has developed a strong presence in the metal forming industry by serving leading automotive OEMs and supply chain partners. TriboForm® builds industrial partnerships with a strong focus on customer needs and best-in-class technical support.



Founders: Dr.Ir. J. Hol and Dr.Ir. J.H. Wiebenga

market-leading expertise

trustworthy partnership

high-value innovations

Follow us and stay informed about
the latest developments



Visit our website for more information
www.triboform.com

TriboForm[®]
virtual tribology