

ESI Group, ESI Software Germany GmbH – partner in the INTERREG project ASPECT on friction in metal forming



ASPECT

European Regional Development Fund



Key Information

- EU funding: € 2.35 Million
- Total budget: € 4.74 Million
- Duration: 45 months [May 2016 – Feb 2020]

Background: *The design of sheet metal forming processes is nowadays done virtually, i.e. by computer simulations. A limitation in these simulations is the assumption of a constant friction value over the course of the process, while in reality a temperature increase of 40°C in the tool – during the start-up of the production line – impacts on the tribology between the tool and sheet material, leading to a friction increase of up to 25 % and product failures as a result. The control of these effects is currently done reactively, by trial-and-error approaches, based on the individual experience of the machine operators, rather than by using automated, adaptive control systems. The current practice therefore results in process instability, high costs and slow process development. Moreover, with the increasing use of advanced steel grades, which generate more heat purely due to their strength, predicting and controlling the influence of temperature on friction becomes critical for the concerned industries.*

The ASPECT project, funded by the programme INTERREG North-West Europe, aims to create a reliable, robust framework to predict friction increase with temperature and to develop a control system that can instantaneously correct the applied forces to account for the sensed friction increase.

Project Partners:

1. [Stichting Materials Innovation Institute \(M2i\)](#), The Netherlands – Lead Partner
2. [Triboform Engineering BV](#), The Netherlands
3. [ESI GROUP](#), France
4. [Falex Tribology NV](#), Belgium
5. [Universiteit Twente](#), The Netherlands
6. [Zeller+Gmelin GmbH](#), Germany
7. [Tata Steel Nederland Technology BV](#), The Netherlands
8. [INSPIRE AG](#), Switzerland
9. [Opel Automobile GmbH](#), Germany
10. [Philips Consumer Lifestyle BV](#), The Netherlands
11. [AutomotiveNL](#), The Netherlands
12. [Pôle EMC2](#), France
13. [Dr. FILZEK TRIBOtech](#), Germany
14. [ESI Software GmbH](#), Germany

Expected results:

- numerical model to predict friction variation based on real process conditions;
- fully-automated forming demonstrators for Automotive and Consumer goods applications;
- joint demonstration facility, open for training and education;
- guidelines to improve the material, tool and lubricant design.

For more information please visit ASPECT webpage at: www.nweurope.eu/aspect