Testing and modelling of industrial tribo-systems for sheet metal forming

Galling is a well-known problem in sheet metal forming of tribological difficult materials such as stainless steel. In this work new, environmentally friendly lubricants and wear resistant tool materials are tested in a laboratory environment using a strip reduction test as well as in a real production tool at the Danish company Grundfos A/S. The performance of the different tribo-systems in laboratory tests agrees very well with their performance in the production. The production tool is modified to measure the punch load as well as punch and die temperatures 1mm from the active tool surface. The backstroke force and tool surface temperature are found to be highly sensitive to the initiation of galling. Furthermore the results combined with numerical investigations indicates that the level of the interface temperature is a vital factor predicting the initiation of galling.

General information
Publication status: Published
Organisations: Manufacturing Engineering, Department of Mechanical Engineering
Contributors: Friis, K. L., Nielsen, P. S., Bay, N.
Pages: 209-210
Publication date: 2008

Host publication information
Title of host publication: Advanced Technology of Plasticity : Proceed. 9th International Conference on Technology of Plasticity
Place of publication: Korea
Publisher: Korean Society for Technology of Plasticity
Editors: Yang, D., Kim, Y., Park, C.
ISBN (Print): 978-89-5708-151-8
Source: orbit
Source ID: 232073
Research output: Chapter in Book/Report/Conference proceeding › Article in proceedings – Annual report year: 2008 › Research › peer-review