Analysis of lubricant performance in punching and blanking

Punching and blanking processes are characterized by severe tribological conditions due to the creation of virgin surfaces, which are highly prone to develop pick-up of workpiece material on the punch surface. Hazardous forming lubricants are, therefore, commonly used in punching and blanking processes for avoidance of wear induced process deviations such as diminished surface quality, reduced dimensional accuracy and reduced tool life. The present study characterizes the function and performance of lubricants used for punching and blanking operations for assessment of the tribological lubricant properties necessary for adaption of environmentally friendly lubricant alternatives. Analysis of the tribochemical properties of the studied lubricants indicate that an applicable temperature range and a high load bearing capacity are central lubricant properties necessary for ensuring sufficient lubricating ability for punching and blanking operations.

General information
Publication status: Published
Organisations: Manufacturing Engineering, Department of Mechanical Engineering, Materials and Surface Engineering, CNRS
Corresponding author: Moghadam, M.
Contributors: Moghadam, M., Villa, M., Moreau, P., Dubois, A., Dubar, L., Nielsen, C. V., Bay, N.
Number of pages: 8
Publication date: 2020
Peer-reviewed: Yes

Publication information
Journal: Tribology International
Volume: 141
Article number: 105949
ISSN (Print): 0301-679X
Ratings:
BFI (2020): BFI-level 2
Web of Science (2020): Indexed yes
Original language: English
Keywords: Lubrication, Punching, Blanking, Wear
DOIs: 10.1016/j.triboint.2019.105949
Source: Bibtex
Source ID: MOGHADAM2020105949
Research output: Contribution to journal › Journal article – Annual report year: 2020 › Research › peer-review