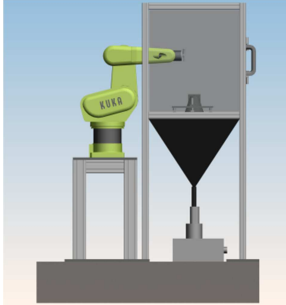


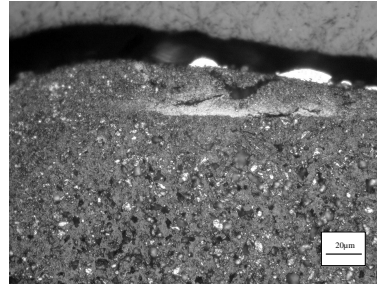
Bachelorarbeit / Studienarbeit

Tool-wear analysis in meso-micro scale EDM

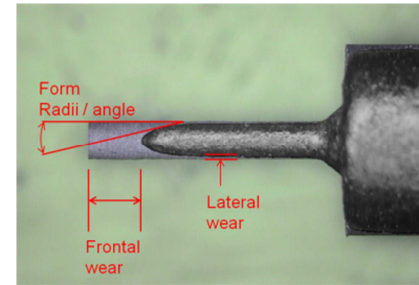
Micro abrasive jet machining



Pyrolytic graphite film



Tool wear



Keywords: Micro abrasive jet machining, Meso-Micro EDM, Micro hardness, Tool wear

Motivation

With the growing field of precision and micromachining, precision manufacturing methods are being sought to machine high aspect ratio structures from metals and ceramics with high productivity and minimal costs. Typical industries include Electronics, Medicine, Aerospace, etc. industries are mainly interested in machining cavities while incurring lowest tool wear possible which has been achieved using iQ zero wear technology in Conventional and Meso-Micro EDM. Focus of this work is to understand the zero wear technology in EDM which uses pyrolytic graphite film produced in-process using electric discharge plasma.

Tasks

- Understanding basics of EDM process, electrode wear, Operation of Micro abrasive jet robot at IWF
- Basic EDM experiments with zero wear technology using graphite and copper electrodes
- Abrasive jet experiments with Graphite and copper electrodes
- Measurement of micro-hardness of graphite film produced during EDM
- Graphite film characterisation
- Simulation of electrostatic forces
- Summarise the results and documentation

Required skills

Motivation, interest in experimentation and measurement

Type of Work

- Experimentation 40%, Measurement and Analysis 40%, Documentation 20%

We offer

- Work in interdisciplinary team
- Interdisciplinary research work
- Close contact to the industry – AgieCharmilles SA

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