吉林大学学报(工学版) 2008 38 (05): 1069-1076 ISSN: 1671-5497 CN: 22-1341/T

面向微小零件加工的微细切削技术

梁迎春[1]，赵岩[1,2]，王波[1]，白清顺[1]，陈明君[1]，孙雅洲[1]

1.哈尔滨工业大学 机电工程学院，哈尔滨 150001;2.燕山大学 机械工程学院,河北 秦皇岛, 066004

收稿日期 2007-5-14 修回日期 网络版发布日期 2008-8-20 接受日期

摘要 比较了传统的精密/超精密机床与微小型机床在微细切削中的优缺点，综述了微小型机床在日本、美国、韩国以及中国的研制情况。分析了最小切削厚度和工件微结构对微细切削的影响，讨论了微细切削在微毛刺、表面形成、切削力建模及微刀具磨损方面的机理问题并指出了微细切削今后应当着重解决的技术难点。

关键词 机械制造工艺,机床,微小型机床,微细切削,微刀具

分类号 TG501.1

State of the art of microcutting technology for the manufacture of microparts

LIANG Ying-chun[1], ZHAO Yan[1, 2], WANG Bo[1], BAI Qing-shun[1], CHEN Ming-jun[1], SUN Ya-zhou[1]

1.School of Mechatronacis Engineering，Harbin Institute of Technology，Harbin 150001，China；2.School of Mechanical Engineering，Yanshan University，Qinhuangdao 066004，China

Abstract The advantages and disadvantages between micromachine tools and traditional precision/ultraprecision machine tools were compared. The developments of the micromachine tools in Japan, America, Korea and China were presented. The effects of minimum chip thickness and material microstructure on the microcutting were analyzed. The other mechanisms of microcutting, such as microburrs, surface generation, cutting force modelling, and microcutter wear were also discussed. Finally, some comments on future needs and directions for the microcutting were offered.

Key words mechanical manufacturing technology machine tool micromachine tool microcutting microcutter

DOI:

通讯作者 梁迎春 zhaoyanhit@163.com