



航空学报 » 2005, Vol. 26 » Issue (6) : 764-767 DOI:

论文

最新目录 | 下期目录 | 过刊浏览 | 高级检索

<< Previous Articles | Next Articles >>

### 应用基于FEM的预成形最优化方法提高锻件变形均匀性

杨艳慧, 刘东, 罗子健, 闫世成

西北工业大学 材料科学与工程学院, 陕西 西安 710072

### Improving the Deformation Uniformity within Forgings by Applying Preformed Optimization Based on FEM

YANG Yan-hui, LIU Dong, LUO Zi-jian, YAN Shi-cheng

College of Materials Science and Engineering, Northwestern Polytechnical University, Xi'an 710072, China

摘要

参考文献

相关文章

Download: PDF (468KB) HTML OKB Export: BibTeX or EndNote (RIS) Supporting Info

**摘要** 锻件变形分布不均匀将导致锻件各部位的组织和性能产生很大差异。应用基于正向有限元数值模拟和最优化方法进行坯料预成形设计的新方法,可显著提高锻件各部位的变形均匀性。首先介绍了以提高锻件变形分布均匀性为目的的坯料预成形最优化方法的基本原理,并针对典型的IN718合金涡轮盘锻件进行了坯料预成形设计。给出了预成形坯料与普通圆柱坯料的对比结果,并进行了相应的试验验证。结果表明,应用这种方法对IN718合金涡轮盘锻件进行坯料预成形设计,可使盘锻件各部位变形均匀性明显改善。

**关键词:** 预成形最优化 有限元 IN718合金 涡轮盘锻件 变形均匀性

**Abstract:** Non-uniform deformation within forgings can result in much difference in microstructure and property. The preform design applying the method for preform optimization based on FEM can improve the deformation uniformity within forgings effectively. The fundamental of this method is formulated firstly. As an example, the preform optimization for a typical IN718 turbine disk forging is performed. The results for the optimal billet are presented and compared with those of the cylinder billet. The die forging experiments with different billets are carried out to validate this method. The results show that the deformation uniformity within the turbine disk can be improved evidently by application of the proposed method.

**Keywords:** preform optimization FEM IN718 alloy turbine disk forging deformation uniformity

Received 2004-09-03; published 2005-12-25

#### 引用本文:

杨艳慧; 刘东; 罗子健; 闫世成. 应用基于FEM的预成形最优化方法提高锻件变形均匀性[J]. 航空学报, 2005, 26(6): 764-767.

YANG Yan-hui; LIU Dong; LUO Zi-jian; YAN Shi-cheng. Improving the Deformation Uniformity within Forgings by Applying Preformed Optimization Based on FEM [J]. Acta Aeronautica et Astronautica Sinica, 2005, 26(6): 764-767.

#### Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

#### 作者相关文章

- ▶ 杨艳慧
- ▶ 刘东
- ▶ 罗子健
- ▶ 闫世成