

机械科学

金属切削中刀具月牙洼磨损模型的研究

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摘要:

刀具的前刀面月牙洼磨损和后刀面磨损在刀具磨损的研究中占据同等地位,但月牙洼磨损轮廓和刀屑交界面上的切削过程变量不易测量等因素,导致真正依据月牙洼磨损测试获取月牙洼磨损模型的研究非常少。基于硬质合金刀具切削低碳钢的月牙洼磨损实验,提出了一个经验磨损模型。该模型综合了黏结磨损和扩散磨损,考虑了刀屑界面温度和压力对月牙洼磨损的影响。研究结果表明,该模型能够分析并预测相似切削条件下的月牙洼磨损轮廓。

关键词:

金属切削;月牙洼磨损模型;磨损轮廓;刀屑界面温度

Research on Tool Crater Wear Model in Metal Cutting

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Abstract:

Tool crater wear and flank wear are dominant for cutting tool performance in metal cutting. However, researches on tool crater wear model based on crater wear tests are rare, because crater wear profile and cutting process variables are difficult to measure. This paper proposed an empirical crater wear model, which involved adhesive wear and diffusion wear. Temperature and pressure distribution on tool-chip interface were considered in this model. The results give good prediction to crater wear profile under similar cutting conditions.

Keywords: metal cutting; crater wear model; wear profile; temperature on tool-chip interface" href="#"> metal cutting; crater wear model; wear profile; temperature on tool-chip interface

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